

Attorney Docket No.: NCR 9792
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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	§	Group Art No.	2167
Paul L. Sinclair, et al.	§		
	§		
Serial No.: 09/981,613	§	Examiner:	Linh Black
	§		
Filed: 10/16/2001	§		
	§		
For: Partitioned Database System	§	Attorney Docket No.: 9792	

Mail Stop Appeal Brief - Patents
Honorable Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

APPELLANT'S BRIEF (37 C.F.R. § 1.192)

This brief is submitted in support of appellants' notice of appeal from the decision dated December 28, 2004 of the Examiner.

This brief is transmitted in triplicate per 37 C.F.R. § 1.192.

I. IDENTIFICATION OF THE REAL PARTY OF INTEREST

The real party in interest is:

NCR Corporation
1700 S. Patterson Blvd
Dayton, Ohio 45479

by virtue of an assignment by the inventors as duly recorded in the Assignment Branch of the U.S. Patent and Trademark Office.

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II. IDENTIFICATION OF RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences, to Applicants' knowledge.

III. STATUS OF ALL THE CLAIMS, PENDING OR CANCELLED, AND IDENTIFYING THE CLAIMS APPEALED

The application as originally filed contained 37 claims. Claims 7, 9-11, 13, and 14 are pending. Claim 14 is appealed.

IV. STATUS OF ANY AMENDMENT FILED SUBSEQUENT TO FINAL REJECTION

Applicant filed an amendment canceling claims 7, 9-11, and 13 and adding claims 38-40, each dependent on claim 14. That amendment has not been entered.

V. SUMMARY OF THE INVENTION

Applicant's invention as claimed in independent claim 14 is a partitioned database system. Various aspects of one exemplary embodiment of the invention are depicted in Figures 1, 4 and 7. Identifiers from those figures are used in this description to indicate examples of how the invention could be implemented, though the invention could be implemented in other forms consistent with the claim language. In the invention, table rows (125_{1-Z}) are stored in a plurality of storage facilities (120_{1-N}), such as arrays of hard disk drives. For each row (120) in a plurality of rows (125_{1-Z}), there is a corresponding row identifier (400). The row identifier (400) includes at least a first value (402) and a second value (404) that have relationships to the data in the row (125). The row identifiers (400) are used to determine the logical order in which the rows (125_{1-Z}) of a particular table (710) are stored on a particular storage facility (120₁) with the first value (402) predominately setting the order and the second value (404) determining the order of rows (125_{1-Z}) with identical first values (402). Furthermore, the second value (404) of the row identifier (400) is used to determine on which of the storage facilities (120_{1-N}) a particular row (125) is stored.

Organizing rows (125_{1-Z}) both with respect to the storage facilities (120_{1-N}) and with respect to the order on the storage facilities (120_{1-N}) can improve the performance and efficiency of the partitioned database system (100). Efficiency is improved by controlling the distribution

of rows (125_{1-Z}) to the storage facilities (120_{1-N}). Performance is improved by controlling the ordering of rows in particular storage facilities (120_{1-N}) according to a related value (402). Using the present invention, the method of calculating a first value (402) may be chosen to decrease the resource cost for conducting searches within rows on a storage facility (120), while the method of calculating a second value (404) may be chosen to evenly distribute the rows (125_{1-Z}) across the available storage facilities (120_{1-N}).

VI. CONCISE STATEMENT OF THE ISSUES PRESENTED FOR REVIEW

The examiner rejected claim 14 under 35 USC 103(a) over Kruglikov et al. (United States Patent Number 6,105,026) in view of Tow et al. (United States Patent Number 5,860,070).

The examiner argued that “it would have been obvious to one of ordinary skill in the art at the time of the invention to combine Kruglikov’s teaching with Tow’s teaching of multi-column key associated with hash values in order to provide an efficient locking mechanism in managing and distribution the data records among the storage facilities.” See page 6 of the Final Office Action. The examiner further argued that the id# column of Kruglikov’s Figure 1 taught “table rows are distributed among the plurality of storage facilities based on the second value.” See page 2 of the Advisory Action. Applicant disagrees that Kruglikov or Tow teaches or suggests that rows should be distributed among a plurality of storage facilities based on a second value within the key that is used to order rows from a particular table on a particular storage facility.

VII. GROUPING OF CLAIMS

Claim 14 is the only claim appealed.

VIII. ARGUMENTS OF THE APPELLANT, WITH EACH ISSUE IN SEPARATE HEADINGS, WITH RESPECT TO EACH ISSUE PRESENTED FOR REVIEW

- A. The subject matter of claim 14 would not have been obvious over Kruglikov in view of Tow because neither reference discloses or suggests distributing rows to a plurality of storage facilities according to a value that is combined with another, predominate value to order table rows on each storage facility.**

In the Final Office Action in this matter, the examiner rejected claim 14, together with claim 13, under 35 USC 103(a) over Kruglikov et al. (United States Patent Number 6,105,026) in

view of Tow et al. (United States Patent Number 5,860,070). Claim 14 requires, in pertinent part, that "table rows in each storage facility that correspond to a specific table are logically ordered according to a row identifier (row ID)"; that "the row ID comprises a first value based on one or more columns of the table and a second value based on one or more columns of the table" where "the first value of the row ID is predominate in determining the order of the rows in the storage facilities"; and that "table rows are distributed among the plurality of storage facilities based on the second value."

In the rejection of claim 14, the examiner asserted that Kruglikov taught storage facilities including table rows, *see* page 5 of the Final Office Action, but did not assert that Kruglikov taught a manner of distributing rows among the facilities. The Tow reference has no teaching regarding whether rows are distributed across multiple facilities and the examiner does not assert that it does. In the subsequent Advisory Action, the Examiner asserted that distribution of rows among the storage facilities was taught by the ID# column in Figure 1 of Kruglikov et al. *See* page 2 of the Advisory Action.

Figure 1, however, does not teach anything about the use of storage facilities. It merely shows the logical structure of a table 100 that is divided into partitions 110,120,130. Figure 2 shows that same table 100 all contained on one disk 200. If anything, Kruglikov teaches away from the distribution of rows across storage facilities based on a row ID because all the rows are placed on the same disk 200, despite having different field values.

Because Kruglikov fails to teach any manner of distributing rows across storage facilities based on a row ID, let alone using the claimed second value, there is no basis for an obviousness rejection to claim 14 or any claim dependent therefrom. *See In re Thrift*, 298 F.3d 1357, 1365-66 (Fed. Cir. 2002). Any assertion that the claimed row distribution is taught by the combination of Kruglikov and Tow would be an exercise in impermissible hindsight where neither reference mentions or suggests such a system.

Summary

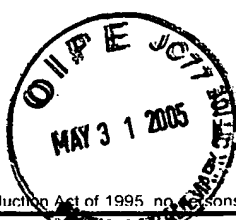
The rejection of claim 14 should be reversed because none of the cited references, alone or in combination, disclose the limitations required by the claim.

Respectfully submitted,

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Date: May 31, 2005



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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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Effective 07/01/2004

Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

FEE TRANSMITTAL
For FY 2005☐ Applicant claims small entity status. See 37 CFR 1.27**TOTAL AMOUNT OF PAYMENT** (\$) 500.00**Complete if Known**

Application Number	09/981,613
Filing Date	10/16/2001
First Named Inventor	Paul L. Sinclair, et al.
Examiner Name	Linh Black
Art Unit	2167
Attorney Docket No.	9792

METHOD OF PAYMENT (check all that apply)☒ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____☒ Deposit Account Deposit Account Number: 02-0383 Deposit Account Name: Baker Botts L.L.P. 023640

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

☐ Charge fee(s) indicated below☐ Charge fee(s) indicated below, except for the filing fee☒ Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17☒ Credit any overpayments**WARNING:** Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.**FEE CALCULATION****1. BASIC FILING, SEARCH, AND EXAMINATION FEES**

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	
Utility	300	150	500	250	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

2. EXCESS CLAIM FEES**Fee Description**Each claim over 20 (including Reissues)
Each independent claim over 3 (including Reissues)
Multiple dependent claims

Fee (\$)	Small Entity Fee (\$)
50	25
200	100
360	180

Total Claims **Extra Claims** **Fee (\$)** **Fee Paid (\$)**

- 20 or HP = _____ x _____ = _____

HP = highest number of total claims paid for, if greater than 20.

Indep. Claims **Extra Claims** **Fee (\$)** **Fee Paid (\$)**

- 3 or HP = _____ x _____ = _____

HP = highest number of independent claims paid for, if greater than 3.

Multiple Dependent Claims
Fee (\$) **Fee Paid (\$)****3. APPLICATION SIZE FEE**

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee (\$)	Fees Paid (\$)
_____	_____	_____	_____	_____

- 100 = _____ / 50 = _____ (round up to a whole number) x _____ = _____

4. OTHER FEE(S)

Non-English Specification, \$130 fee (no small entity discount)

Other (e.g., late filing surcharge): Appellant's Brief**Fees Paid (\$)**

\$500.00

SUBMITTED BY

Signature	<u>Howard Speight</u>	Registration No. (Attorney/Agent)	37,733	Telephone	713.229.2057
Name (Print/Type)	Howard L. Speight			Date	05/31/2005

This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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